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ABSTRACT

The New York State Experimental Prekindergarten Program (PreK) evaluation studied successive waves of children while they were in PreK, and as they progressed through the third grade. For each wave, two control groups were obtained: (1) A waiting-list control group, children in districts offering PreK programs who were identified as eligible for the PreK program. (2) An other-district control group, children in selected districts not operating PreK programs. To attempt to attain comparability between PreK children and children in the other-district control groups, selection took place at two levels: control districts were selected so as to resemble PreK districts as a group, and within those districts, children were selected according to the criteria used in admitting children to the PreK program. Restrictions in the availability of comparable districts and reluctance on the part of a large number of districts to participate made the match of control group and PreK group inexact. Differences among the control districts in the attrition of children available for the study may further reduce the comparability of the control group and PreK group. (Author/MV)

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OBTAINING CONTROL GROUPS

FOR EVALUATING

THE NEW YORK STATE EXPERIMENTAL PREKINDERGARTEN PROGRAM

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OBTAINING CONTROL GROUPS FOR EVALUATING THE NEW YORK STATE EXPERIMENTAL PREKINDERGARTEN PROGRAM

In order to assess the impact of a program such as prekindergarten on the development of children, it is necessary to have a standard against which their performance can be compared. Any of several strategies might be used to obtain such a standard.

One strategy is to compare the prekindergarten children's scores to norms based on similar children. If the prekindergarten children's post-test scores compare more favorably with the norms than did their pretest scores, this can be interpreted as evidence that the prekindergarten program positively affected their scores. This strategy has a number of potential problems, including possible differences between the norm group and the children under study in socioeconomic backgrounds, age when tested, and the times at which testing takes place during the school year. A more adequate strategy is to obtain a control group of similar children who are not exposed to prekindergarten experiences. The prekindergarten children's performance can be compared to that of the control group. Differences between the two groups can be interpreted as evidence of the effects of the prekindergarten program, assuming that other possible influences have been accounted for. This latter strategy was adopted whenever possible in evaluating the Experimental Prekindergarten (PreK) Program.

The design for evaluating the PreK program calls for the study of successive waves of children while they are in PreK and as they progress through the third grade. For each wave, two control groups are being obtained:

1. A "waiting-list control group," made up of children in districts offering PreK programs. These children were identified as eligible for the PreK program and, in most cases, are on a waiting list for admission to the program if openings occur.
2. An "other-district control group," made up of children in selected districts not operating PreK programs.

The waiting-list control groups for the first two waves have been found to be rather small (N=87 and N=67, respectively) because PreK programs try to accept all eligible children. Furthermore, the groups are likely to become even smaller with time as some of the children move to other school districts. For these reasons, it appeared desirable to obtain another large control group; this took the form of the other-district control group.

The waiting-list control group for each wave is used in evaluating the performance of children while they are in PreK and in each grade after that as long as the control group remains large enough. The other-district control group is obtained at the kindergarten level and will be used throughout the remainder of the study.

A control group should be as much like the group under study as possible. To attempt to attain comparability between PreK children and children in the other-district control groups, selection took place at two levels:

1. Control districts were selected so as to resemble PreK districts as a group.
2. Within those districts, children were selected according to the criteria used in admitting children to the PreK program.

Restrictions in the availability of comparable districts and reluctance on the part of a large number of districts to participate made the match of control group and PreK group inexact. In addition, differences among the control districts in the rates with which children move from the district or otherwise become unavailable for the study may further reduce the comparability of the control group and PreK group.

The present paper describes procedures used in selecting the other-district control groups for Waves I and II. The same procedures will be applied to any subsequent waves of children studied. Unless otherwise indicated, the term control group refers to the other-district control group throughout the remainder of the paper.

Selecting the Control Districts

In order to obtain a control group which was comparable to the PreK group, two U.S. Census variables were used in selecting control districts: district population and percent of adults with less than high school

education. These variables had been found in earlier research to be related to average school district achievement in elementary school reading and mathematics (Bureau of School Programs Evaluation, Spring 1976).

Using 1970 U.S. Census data, a distribution of the 49 local PreK districts was obtained based on percent of adults in the district with less than high school education. (The three PreK programs operated by boards of cooperative educational services were not included because they do not represent a defined geographical area separate from local districts' boundaries. The excluded programs contain about six percent of the children in the PreK program statewide.)

Districts invited to participate as control districts were selected with the aim of approximating the distribution of PreK districts on the variable, percent of adults with less than high school education. In addition, the districts selected had populations similar to PreK districts.

For Wave I, 13 districts were initially invited to participate as control districts. These districts would have provided a control group of approximately 900 children. Six districts agreed to participate and seven declined. An additional six districts were then invited to participate. Two of these "back-up" districts agreed to participate, making a total of eight districts in the Wave I control group.

Based on the rate of acceptance among districts invited to participate in Wave I, a slightly different approach was used in obtaining control districts for Wave II. Thirty-one districts were asked simultaneously to

participate. No "back-up" districts were identified. In spite of the larger number of districts invited to participate, the results were the same: eight districts agreed to take part in the study.

The lower acceptance rate among districts invited to participate as Wave II control districts suggests the possibility that the pool of comparable districts which are willing to participate is being exhausted.

When a district was invited to participate, it was given a tentative number of children to test. This number was based primarily on the public-school enrollment of the district. A more realistic number was negotiated with some districts after they agreed to participate. The actual number of children tested was determined by the number of children found to be eligible and by staff-time considerations.

Distribution of Children by Socioeconomic Levels of Districts

Table I shows the distributions of Wave I districts and children grouped by six levels of the socioeconomic variable. Distributions are presented for PreK districts, control districts initially invited to participate, and control districts actually participating. For each group, the number of districts, number of children, and the percent of the total number of children are shown for each level of the socioeconomic variable. The columns under "Control Districts Initially Invited," show the distribution of children which the original 13 districts were tentatively asked to test. The columns under "Control Districts Participating" show the distribution of children actually tested in the districts agreeing to serve as control districts.

Table 1
Distribution of Prekindergarten and Control Districts and
Children by Percent of Adults in the District
with Less than High School Education
Wave I, 1976-77

Percent of Adults with Less than High School Education	1975-76 PreK Districts			Control Districts Initially Invited			Control Districts Participating		
	No. of Districts	No. of Children	% of Children	No. of Districts	No. of Children	% of Children	No. of Districts	No. of Children	% of Children
Less than 20	3	159	3	1	50	5	0	0	0
20-29	17	1657	33	5	330	36	3	129	26
30-39	17	1892	37	4	300	33	4	271	56
40-49	6	629	12	1	60	7	0	0	0
50-59	4	495	10	0	0	0	0	0	0
60 or more	2	255	5	2	180	20	1	87	18
Totals	49	5087	100	13	920	101*	8	487	100

*Total percent does not equal 100 because of rounding.

It can be observed by comparing the percentages under "1975-76 PreK Districts" and "Control Districts Participating" that control children are especially underrepresented in the 40-49 and 50-59 percent levels, while they are overrepresented in the 30-39 and 60 percent or more levels.

To assess the average socioeconomic level in relation to the number of children tested in districts at the various levels, the mean percent of adults with less than high school education was computed for the PreK districts, control districts invited, and control districts participating. These mean percent figures are presented in Table 2. They show that control children, on the average, came from districts with somewhat larger percentages of adults with less than high school education than did PreK children; this indicates a slightly lower socioeconomic level of districts from which the control group is drawn.

Table 2
Mean Percent of Adults
with Less than High School Education
Wave I, 1976-77

1975-76 PreK Districts	Control Districts Initially Invited	Control Districts Participating
34.6	36.8	37.5

Similar procedures were used in obtaining a control group for Wave II. Table 3 presents distributions for Wave II districts and children. A comparison of the percentages under "1976-77 PreK Districts" and "Control Districts Participating" shows that control children are especially underrepresented in the 50-59 and 60 percent or more levels and overrepresented in the 40-49 percent level.

Table 3
Distribution of Prekindergarten and Control Districts and Children by Percent of Adults in the District with Less than High School Education
Wave II, 1977-78

Percent of Adults with Less than High School Education	1976-77 PreK Districts			Control Districts Invited to Participate			Control Districts Participating		
	No. of Districts	No. of Children	% of Children	No. of Districts	No. of Children	% of Children	No. of Districts	No. of Children	% of Children
Less than 20	3	157	3	0	0	0	0	0	0
20-29	17	1587	33	11	610	30	1	151	29
30-39	17	1845	38	12	710	35	4	230	44
40-49	6	568	12	6	490	24	3	141	27
50-59	4	442	9	1	120	6	0	0	0
60 or more	2	229	5	1	120	6	0	0	0
Totals	49	4828	100	31	2050	101*	8	522	100

*Total percent does not equal 100 because of rounding.

The mean percent of adults with less than high school education was computed for PreK districts (based on 1976-77 enrollments), control districts invited to participate, and control districts participating. Table 4 presents the results of these computations. It can be observed that children actually tested in the participating control districts came from districts with virtually the same percent of adults with less than high school education as did PreK children (34.4 versus 34.1 mean percent).

Table 4
Mean Percent of Adults
with Less than High School Education
Wave II, 1977-78

1976-77 PreK Districts	Control Districts Invited to Participate	Control Districts Participating
34.1	36.9	34.4

Differences were found in the percent of districts of different types which agreed to participate as control districts. The percent of invited districts agreeing to participate was much higher for small and medium-size city districts than for either large city districts or suburban districts. This was offset in part by testing larger numbers of children in the large city districts than in the small and medium-size districts.

The key factor, of course, is the degree to which the composite characteristics of the individual control children resemble those of the PreK children. Procedures to select individual control children so as to obtain comparable groups are described in the next section.

Selecting Children Within Control Districts

Children are selected for the PreK program on the basis of limited family income and other indicators of disadvantagement. A list of selection criteria is provided to PreK districts to be used in screening children for admission to the program. In order for control children to be selected on the same basis, the list of criteria was supplied to control districts with instructions to emphasize the financial indicators in selecting control children; evidence of inadequate housing and disturbed family environment should be considered in conjunction with other indicators of disadvantagement. The control districts were also asked to make an effort to select children with no preschool educational experience.

A copy of the criteria used in selecting children is included in this report as an appendix.

The Importance of Differences Between Groups

The degree to which the control children resemble the PreK children will be determined when the data are analyzed and will be duly reported. Certain disparities may be taken into consideration in the statistical analyses. For example, data from the first year of the study showed that there was a significant difference between the PreK group and the waiting-list control group in average level of mother's education. It was also found that mother's education was significantly related to each of the three cognitive measures being analyzed. For that reason, mother's education was used as a control variable. In that way, not only were simple differences between the groups studied, but also differences between

PreK and control children whose mother's had the same level of education were assessed (Hick, Kukuk, Horan, and Irvine, May 25, 1977). This same procedure will be used to compensate for certain differences between the PreK group and the other-district control group.

Other disparities between the PreK children and control children may not be dealt with statistically. For example, if the rates at which various ethnic or cultural groups are represented in the control group differ from those rates in the PreK group, a statistical solution is not possible. The user of the research results will have to conclude whether such a disparity is likely to affect the results, and if so, to what extent. Because some so-called racial differences in educational performance have been found to be closely associated with socioeconomic factors, the use of socioeconomic data as control variables may at least in part correct for such differences between groups.

Conclusion

This paper describes procedures for selecting districts to serve as a control group for a study of prekindergarten children. It presents data to show the degree to which comparability between PreK districts and control districts was attained. It also describes procedures used to select children within the control districts.

In spite of a number of difficulties in identifying and obtaining cooperation of districts of certain types and with certain levels of socioeconomic status, there appears to be a sufficiently varied distribution in district socioeconomic levels to make it possible to obtain a control group of children exhibiting a broad range of characteristics.

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APPENDIX

THE STATE EDUCATION DEPARTMENT
Division of Research
Prekindergarten Evaluation Unit

SELECTION OF CONTROL-GROUP CHILDREN

Purpose

The purpose of the control group is to have a group of children to which prekindergarten children may be compared as they progress through the elementary grades. In order for comparisons to be valid, the control group must resemble the prekindergarten group in factors which influence their learning and development. The most important of these factors are ability and social and economic conditions which affect opportunities for learning.

The criteria listed below are used in selecting children for the Experimental Prekindergarten Program. They are to be used in selecting children for the control group.

Indicators of "DISADVANTAGED" Families:

- Needy family relative to limited income
  - family receiving AFDC (aid for families with dependent children)
  - family on assistance (partial or total)
  - family or children eligible for medicaid
  - family with foster children
  - family evidencing nutritional deficiencies
- Needy family relative to inadequate housing
  - family with high density of population per dwelling
  - family living in low value and low standard housing
  - family residence in segregated areas with respect to race or socio-economic class; ghetto, Indian Reservation, immigrant area, etc.
  - family isolated in remote rural area
  - family experiencing frequent changes of address
- Needy family relative to deficient, limiting or problematic familial environment
  - family with record of adult or juvenile delinquency
  - family with record of limited school achievement
  - family with living conditions which are harmful or limiting to normal development
  - family with single parent, or changes in parent
  - family with history of chronic illness
  - family with low aspirational level
  - family speaks language other than English